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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
POULOS, SANDRA K	

ART UNIT	PAPER NUMBER
1714	

DATE MAILED: 10/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/717,814	BUC SLAY ET AL.	
	Examiner	Art Unit	
	Sandra K. Poulos	1714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *39-59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *39-59* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. All outstanding rejections and objections except for those described below are overcome by applicant's amendment filed 8/15/06.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The new grounds of rejection set forth below are necessitated by applicant's amendment filed 8/15/06. In particular, the previously presented claims have been cancelled and replaced with new claims which specify a different combination of limitations than previously presented. Thus the following action is properly made **FINAL**.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 42, 50, and 56 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 42, 50, and 56 recite that the nanomaterial has a "length in the range of approximately 0.1 nanometer to approximately 500 nanometers" wherein "length" has been substituted for the previous "scale". It is the examiner's position that the word

"length" fails to satisfy the written description requirement of 35 USC 112, first paragraph since there does not appear to be a written description requirement that allows for the exchange of "length" for "scale" in the application as originally filed, *In re Wright*, 866 F.2d 422, 9 USPQ2d 1649 (Fed. Cir. 1989) and MPEP 2163. Applicant has not pointed to any portion of the specification, and examiner has not found any support for this phraseology in the specification as originally filed. Furthermore, nanotubes are typically described by diameter rather than length, although there is not support for either in applicant's disclosure.

Claim Rejections - 35 USC § 102

3. Claims 46 and 49 are rejected under 35 U.S.C. 102(e) as being anticipated by Pazur (US 2004/0122155).

Pazer discloses a rubber composition containing a butyl elastomer and at least one nanoclay (abstract). The clay is generally montmorillonite (para 8, 9, 18, 47-48, claim 4). The composition is used in several applications including as gaskets (para 29).

Although Pazer does not specifically disclose that the gasket is for a downhole tool, it is to be noted that a preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Therefore, Pazer anticipates the cited claims.

4. Claims 39-41 and 43-44 are rejected under 35 U.S.C. 102(e) as being anticipated by WO 2005/014708.

WO 708 discloses a carbon nanotube and elastomer composite for seals and o-rings in industries such as automotive and oil drilling and refining (abstract; para 6). Elastomers includes ethylene propylene polymers, acrylonitrile-butadiene rubbers, tetrafluoroethylene based polymers, and perfluoroelastomers (para 13). The chemically modified carbon nanotubes interact chemically and physically with the polymer matrix (para 14, 35).

Although WO 708 does not specifically disclose that the seal or o-ring is for a downhole tool, it is to be noted that a preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Therefore, WO 708 anticipates the cited claims.

5. Claims 46, 48-52 are rejected under 35 U.S.C. 102(b) as being anticipated by Badesha (US 5,840,796).

Badesha discloses a polymer nanocomposite containing a fluoroelastomer and mica-type layered silicate nanoscale filler (abstract; col 2, lines 16-65). The layered silicates include montmorillonite, bentonite, and hectorite (col 2, lines 44-46). The thickness is about 10 Å and the length to thickness ratio is 50 to 1000, or 50 nm to 1 micron (col 3, lines 5-11). The fluoroelastomer includes poly(propylene-tetrafluoroethylene) (col 3, lines 45-47). The nanocomposites may be used as seals and O-rings (col 5, lines 13-14). The fluoroelastomer is sufficiently crosslinked to yield an elastomeric network with optimum mechanical properties (col 3, line 65 to col 4 line 5).

Although Badesha does not specifically disclose that the seal or o-ring is for a downhole tool, it is to be noted that a preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Therefore, Badesha anticipates the cited claims.

6. Claims 46-48 and 51-52 are rejected under 35 U.S.C. 102(e) as being anticipated by Coats (US 20040135292).

Coats discloses a stereolithography resin that can be formulated for flexible products such as gaskets and o-rings (para 63, 67, 68). The resin is a rubber such as

SBR or NBR (para 69). Nanoclays are added to improve the physical and mechanical attributes of the resins in the cured resins (para 100, 126, 127).

Although Coats does not specifically disclose that the gasket or o-ring is for a downhole tool, it is to be noted that a preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Therefore, Coats anticipates the cited claims.

7. Claims 54-57 are rejected under 35 U.S.C. 102(b) as being anticipated by Asaumi (US 4,839,221).

Asaumi discloses a composition comprising polytetrafluoroethylene resin and fine inorganic powder for a gasket wherein the PTFE and powder are uniformy dispersed and mixed with each other (abstract). Inorganic fiber powder such as carbon fiber powder ranging in size from 3 to 30 μm (300 nm to 3000 nm) is added to improve the compressibility of the gasket, which is desirable (col 3 line 49 to col 4 line 4). The composition is molded into a sheet gasket, which would be a kind of flat seal (col 2, lines 62-68; col 5, lines 14-16).

Although Asaumi does not specifically disclose that the gasket is for a downhole tool, it is to be noted that a preamble is generally not accorded any patentable weight

where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Therefore, Asaumi anticipates the cited claims.

Claim Rejections - 35 USC § 102/103

8. Claim 45 is rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over WO 2005/014708.

The discussion with respect to WO 708 in paragraph 4 above is incorporated herein by reference.

Although WO 708 is silent with respect to the microporosity of the nanocomposite, the composition therein contains the same components as the currently claimed composition, thus it is examiner's position that although it is not specifically recited, the composition in WO 708 would nonetheless inherently meet the requirement that the nanomaterial structurally and chemically complement microporosity within the elastomer host material, or alternatively, would obviously have been present in the WO 708 product, absent evidence to the contrary.

9. Claim 53 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Badesha (US 5,840,796).

The discussion with respect to Badesha in paragraph 5 above is incorporated herein by reference.

Although Badesha is silent with respect to the microporosity of the nanocomposite, the composition therein contains the same components as the currently claimed composition, thus it is examiner's position that although it is not specifically recited, the composition in Badesha would nonetheless inherently meet the requirement that the nanomaterial structurally and chemically complement microporosity within the elastomer host material, or alternatively, would obviously have been present in the Badesha product, absent evidence to the contrary.

10. Claims 58-59 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Asaumi (US 4,839,221).

The discussion with respect to Asaumi in paragraph 7 above is incorporated herein by reference.

Although Asaumi is silent with respect to the microporosity of the composition, it the same components as the currently claimed composition, thus it is examiner's position that although it is not specifically recited, the composition in Asaumi would nonetheless inherently meet the requirement that the nanomaterial structurally and chemically complement microporosity within the thermoplastic host material, or alternatively, would obviously have been present in the Asaumi product, absent evidence to the contrary. It is also examiner's position that the thermoplastic and carbon fibers would have interfacial interactions because both the carbon fiber and PTFE are

specifically disclosed in the claims and by Asaumi and thus would inherently meet that requirement, or alternatively, would obviously have been present in the Asaumi product, absent evidence to the contrary.

Claim Rejections - 35 USC § 103

11. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 2005/014708 as applied to claims 39-41 and 43-44 above, in view of Nui (US 6,746,627).

The discussion with respect to WO 708 in paragraph 4 above is incorporated herein by reference.

WO 708 is silent with respect to the size of the nanotubes.

Nui discloses a composite comprising a polyvinylidene fluoride polymer or copolymer and carbon nanotubes wherein carbon nanotubes are present in the range of about 0.5-20% by weight of the composite (abstract). The PVDF composites are useful as conducting gaskets or EMF shield coatings (col 7, lines 56-65). The nanotubes are less than 100 nm in size (claim 1).

It would have been obvious to one of ordinary skill in the art to use nanotubes in the size range given by Nui in order to provide a composite with good strength and conductivity properties (col 3 line 56 to col 4 line 10).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sandra K. Poulos whose telephone number is (571) 272-6428. The examiner can normally be reached on M-F 8:00-4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SKP

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